REMARKS/ARGUMENTS

The Abstract is objected to as using non-standard terminology. Applicants assume that this objection refers to use of terms such as "imprinted" and, as discussed below, Applicants submit that such terminology is appropriate to this invention.

The abstract has been amended to combine the two paragraphs into one, as suggested by MPEP 608.01(b); otherwise, no changes have been made. Applicants submit that the abstract properly represents the overall disclosure of this application, as required by Rule 72.

Figure 3, part 12 is objected to as not properly showing subscripts. The replacement drawing attached hereto makes that correction, without adding any new matter.

The examiner also comments that it is not clear in part 11 of Figure 3 what the connectivity of the heavy atoms is. This is explained in paragraphs 67-69 and shown in Figure 3, parts 10-11. Tertiary alcohols are first used to synthesize a polycarbamate 10 that contains sol-gel active moieties R_5 that include silicon or germanium. On binding to a surface and hydrolysis these groups condense with substrates to bind through those groups, now designated R_6 in Figure 3 part 11. Applicants trust that this explanation clarifies the matter.

Claims 1-16, 18, 30-34, 36 and 38-42 stand rejected under 35 U.S.C., first and second paragraphs, as being nonenabled for certain terminology and/or as not satisfying the written description requirement. The rejection regarding the written description requirement is based on the use of broad functional language such as "functional moieties to be imprinted", thermally labile protecting groups" and "moiety capable of serving as a linker". The enablement rejection is based on the second and third of these terms.

Applicants submit that the specification is enabling for the terms as used in the claims and that the written description requirement is satisfied inasmuch as Applicants had possession of the concepts as claimed. The position of the examiner that only those groups that are specifically exemplified are properly supported is not in accord with the law.

The examiner contends that "thermally labile protecting groups" are overly broad and not enabled. These groups are discussed at some length in paragraph 33 (pages 9-10) and paragraphs 58-63 (pp. 16-19), for instance. The Application exemplifies the use of carbamate and xanthate protecting groups for amines and thiols, respectfully, but also points out that numerous other thermally labile protecting groups well known in the art for other functional

moieties can similarly be used. The examiner has pointed to nothing to contradict that, save the statement that "chemistry is considered to be an unpredictable art and catalysis even more so". However, Applicants disagree with those statements as applied to the present invention. The chemistry of protecting groups is extremely well established, with several reference works on this subject in common use. Catalysis is far more predictable now than it was many years ago and, in any case, the present invention is not involved with establishing novel catalytic or chemical activity but, in the case of catalysts, with constructing ordered imprinted catalytic materials using substances that have been identified as being catalysts. Applicants submit therefore that the term "thermally labile protecting groups" is both enabled and described.

The term "moiety capable of serving as a linker" is likewise deemed enabled and described. These moieties are also discussed, for instance, at paragraphs 33 and 58-63, as well as in paragraphs 67-74, which describe a variety of linking groups that may be used, and gives desired properties. Applicants submit that this term is fully supported by the specification.

The term "functional moieties to be imprinted" likewise is enabled and described. The specification exemplifies amino and sulfhydryl (also referred to as "thiol") groups as functional moieties to be imprinted in the detailed working examples, and lists a number of suitable others in paragraphs 33 and 58, for example, including isocyanate, carboxyl, hydroxyl, phenoxyl, and alkoxyl. The support - both enablement and written description - for this term is not limited to the two exemplified groups.

Withdrawal of the rejections of claims 1-10, 16, 18, 30-34, 36 and 38-42 under 35 U.S.C. 112 is respectfully requested.

Claims 7 and 56-61 are rejected as indefinite with respect to the term "bulk inorganic oxide". This term simply means a bulk material, e.g. a loose particulate material, that comprises an inorganic oxide.

The examiner also suggests replacing the term, "functional moieties" by "functional groups". However, Applicants submit that "functional moieties" is clear and definite, and no replacement is needed. In addition, Applicants trust that the Examiner understands that, in view of the Festo decision, Applicants are wary of replacing one term with another, absent a significant reason to do so.

The examiner asserts that the term "imprinted" is not in accord with conventional terminology, citing some references in support. The examiner also states that the more correct term would be "functionalized surface" or "substrate having functional groups". However, Applicants submit that the term "imprinted" is the term used today for the types of materials produced and claimed herein, namely those having functional moieties that are patterned as opposed to situated at random. Reference is made to recent documents such as Wulff et al., Davis et al., and Katz et al. in the list of cited references (pp. 37-38) and U.S. patent 6,380,266. All of these are submitted with the accompanying Information Disclosure Statement.

The term "imprinted" is appropriate and accurate to describe the materials and the process claimed and described in this Application. By "imprinted" is meant, as currently used in the art, that the functional groups in the products are arranged in a pattern, as opposed to occurring willy-nilly. Imprinted materials are thus a subset of functionalized surfaces, which may be either patterned or random.

Similarly the term "imprinted with" is appropriate, as compared to "incorporating".

The examiner comments that it is not clear whether the moieties capable of serving as a linker actually do so, but regrettably does not give a specific reference to the text of the Application. Perhaps the reference in the Office Action to Figure 3 part 11 was the basis for this; if so; Applicants submit that this question has been answered above. If not, clarification of the question is respectfully requested.

In claims 1-4, the word "an" has been added, per the examiner's suggestion, for grammatical correctness, and in claim 2, "inorganic" has been added, but no change in the nature or scope of the claim, including with respect to equivalents, is intended to be accomplished by either change. The term "a thermally labile portion" has been retained since the thermally labile portion that is removed might not exactly correspond to the thermally labile protecting group or groups in the imprinting compound. In claim 3, "organic" is an error and has been changed to "inorganic". However, as the use of "organic" was clearly an error, this change does not affect the scope of equivalents to which this claim my be entitled.

In claims 5 and 47, the term "or a mixture thereof" is appropriate, meaning that the oxide may be a mixture of two or more of the recited oxides.

In claims 10 and 46, the term "generally planar" is considered by those in the art to mean generally two-dimensional, i.e. the thickness of the material is relatively quite small compared to its length and width. An example is a disc or wafer.

Regarding claim 17 and others, the examiner is correct that "amine" and "thiol", technically speaking, refer to compounds rather than to functional groups; the truly proper names for these groups are "amino" and "sulfhydryl", respectively. However, Applicants submit that these terms have been used throughout the specification, as is common among chemists, to refer to the functional groups that characterize these types of compounds, as opposed to the compounds themselves. The meaning of these terms in this application is, and will be, clear to those skilled in the art reading the Specification, and the usage of them is in accord with common usage in the art, which in this case is not necessarily the dictionary definitions. Amendment of the specification might be needed if claim 17 and others would be amended, and Applicants submit that correction of this generally accepted but technically incorrect terminology is not needed.

Claim 31 has been amended to provide the necessary antecedent language.

Claims 43-48 and 52-61 stand rejected as anticipated by Dai et al. Claims 43-48 and 56 stand rejected as anticipated by Ward. Dai et al. teach imprinting two amino groups on a silica surface; Ward does not teach imprinting any groups on a surface.

Claim 43 has been amended to call for the imprinting of two different functional moieties on a surface, and new claim 62 has been added calling for the imprinting of four or more functional moieties. Neither claim is anticipated or rendered obvious by Dai et al. or Ward.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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Attachments

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